

PRIDE

Pharmaceutical Research in Drug Evolution



Sultan-ul-Uloom College of Pharmacy

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EDITOR'S DESK

Greetings faculty, staff, students, alumni and friends of the Sultan-ul-Uloom College of Pharmacy, We're glad to bring you the first edition of PRIDE. It's been a busy and productive year – one that has involved extensive investment of personnel and financial resources in all aspects of pharmacy. We're extremely proud of the accomplishments of our student, staff and faculty and the differences they are making everywhere around us. I hope you enjoy learning about some of these achievements and of the College's events and plans for the coming year.

Our academic programs continue to be strong and are led by our 20 faculty and teaching professionals. Our Post graduate M.Pharm programs of 72 students remain strong, and the Bachelors in Pharmaceutical Sciences (B.Pharm) program now numbers over 275 students. Our faculty and students are engaged in various outreach service activities, totaling over 13,000 hours in the 2011-12 academic year.

I am very proud of our amazing alumni and stakeholders that continue to generously support our students and faculty

through philanthropic giving.

It has indeed been my great pleasure to serve as Principal for the college and to facilitate the great work of our faculty, students, alumni and friends over the past decade. This truly has been an eventful year within our small community of the Sultan-ul-Uloom College of Pharmacy. Thank you all for all you have done to contribute. There is much more still to come, so please be involved and join your colleagues at our upcoming events.

Vision & Mission

Vision

Sultan-ul-Uloom College of Pharmacy aspires to emerge as an internationally acclaimed institute of excellence imparting holistic pharmacy education along with innovative research, industry interface and patient care with a humane touch.

Mission

Our mission is to be an institute of academic excellence in nurturing outstanding pharmacists by

- Ensuring high standards in imparting quality pharmacy education effectively integrating critical thinking, problem solving, team spirit and leadership skills.
- Promoting the academic, entrepreneurial and career growth of the students with ethical values and social commitment for sustainable development.
- Quenching intellectual thirst and fostering scientific temper for cutting edge research in pharmaceutical and clinical sciences that translates into health care and caters to the needs of the society at large.
- Building a collaborative environment with pharmaceutical industries, academic, clinical and research organizations that values and rewards innovation, productivity and life-long learning.

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Cough

A cough may be a trivial symptom, either reflecting a minor ailment or possibly pointing to a serious underlying disease. A productive cough produces phlegm or mucus (sputum). The mucus may have drained down the back of the throat from the nose or sinuses or may have come up from the lungs. A productive cough generally should not be suppressed—it clears mucus from the lungs. A nonproductive cough is dry and does not produce sputum. A dry, hacking cough may develop toward the end of a cold or after exposure to an irritant, such as dust or smoke. Chronic cough is often the key symptom of many important chronic respiratory diseases but may be the sole presenting feature of a number of extra pulmonary conditions, in particular upper airway and gastrointestinal disease. Some causes of a cough are given in tabular form.

Some underlying symptoms and signs of Cough in clinical practice

Underlying condition	Comments
Coryza (cold)	Associated with cold symptoms
Acute bronchitis	Often following a cold; there may be production of sputum, with wheezing and a temperature
Tracheitis	A dry, rasping and painful cough which is often associated with a viral infection
Pneumonia	Infection of the alveoli which leads to sputum (which may be blood stained and is often rusty in appearance), breathlessness, pleuritic chest pains and fever
Chronic bronchitis	<ul style="list-style-type: none"> • COPD • Associated with exacerbations • The 'smoker's cough' may herald the onset of COPD • May be associated with wheezing and breathlessness • Often a nocturnal cough and this may be the only symptom in a child
Asthma	For example, with ACE inhibitors
Drug induced	A long-term 'nervous cough'
Anxiety	Associated with recent inhalation of an object
Foreign body	Associated with tiredness, malaise, weight loss, fever and haemoptysis
Tuberculosis	<ul style="list-style-type: none"> • Dilated bronchioles with persistent infections and mucus • Copious amounts of sputum which may be blood stained
Bronchiectasis	Associated with breathlessness and oedema
Congestive heart failure	A history of smoking associated with haemoptysis. A change in a 'smoker's cough' is a serious alerting symptom
Lung cancer	

ACE, angiotensin-converting enzyme; COPD, chronic obstructive pulmonary disease.

Hydrotherapy

Hydrotherapy is a wonderful science that has been used since ancient times. Hydrotherapy is the use of water as a medical treatment. The water can be in the form of water vapor, steam, liquid, or ice, and can be either taken internally or used externally. Other common names for hydrotherapy are water therapy, balneotherapy, hydrothermal therapy. The therapeutic use of water has a long history. Ruins of an ancient bath were unearthed in Pakistan and date as far back as 4500 B.C. Bathhouses were an essential part of ancient Roman culture. The use of steam, baths, and aromatic massage to promote well being is documented since the first century. Roman physicians Galen and Celsus wrote of treating patients with warm and cold baths in order to prevent disease. The use of heat hydrotherapy, especially as promoted during the height of its Victorian revival, has often been associated with the use of cold water, as evidenced by many titles from that era. The specific use of heat was however often associated with the Turkish bath. The Turkish bath became a public institution, and, with the morning tub and the general practice of water drinking, is the most noteworthy of the many contributions by hydropathy to public health. Cryotherapy, cold water immersion or ice bath is another form of hydrotherapy used by physical therapists, sports medicine facilities and rehab clinics. Contrast hydrotherapy is operated by alternating the temperatures, either in a shower or complementary tanks, combines the use of hot and cold in the same session. Proponents claim improved return of blood flow and byproducts of cellular breakdown to the lymphatic system and more efficient recycling. Experimental evidence suggests that contrast hydrotherapy helps to reduce injury in the acute stages by stimulating blood flow and reducing swelling.



Spectrophotometric Estimation of Etraverine Sulphate in Pharmaceutical Formulations

Objective: The main objective of this study is the development, and validation of a quick, precise and simple extractive spectrophotometric method for determining Etraverine in pharmaceutical dosage forms.

Methods: Aliquots of standard drug solution of Etraverine 1- 10 ml (100 µg/ml) were taken and from that 1 – 10 mcg/ml concentrations (1, 2, 4, 6, 8 & 10µg/ml) were made with acetone. Then 1ml each of phthalate buffer and dye or reagent (BCG in method-A and BPB in method-B) was added to etraverine solutions. It was mixed properly and after sometime 5 ml of chloroform was added. The reactions mixture was shaken gently for 5 minutes. Reaction mixture was allowed to stand, so as to separate the aqueous and chloroform layer. Colored chloroform layer was separated out and absorbance was measured at 415nm and 425nm respectively against the blank. Similarly the method was repeated by taking different concentrations to obtain the absorbance. Calibration curve was plotted from absorbance values obtained.

Results: A rapid and simple extractive spectrophotometric method was developed and validated for determination of Etraverine in pharmaceutical dosage forms. The method was applied to the pharmaceutical dosage forms with good recovery and sensitivity.

Conclusion: The proposed methods are economical and sensitive for the estimation of Etraverine in bulk drug and in its Tablet dosage forms.

Corresponding Author:

Dr. J. Venkateshwara Rao
Dept. of Pharm. Analysis
Sultan-ul-Uloom College of Pharmacy

Molecular Docking and Animal Studies of *Gymnema Sylvestre* to Study its Effect on Endothelial Nitric Oxide Synthase (eNOS) Associated With Type - II Diabetes and Related Complications

Introduction: Diabetes is a metabolic disorder that is characterized by high blood glucose in the context of insulin resistance and relative insulin deficiency. Decreased production of Nitric oxide by endothelial Nitric Oxide Synthase due to glucose overload is a major reason for diabetic vascular complications. Molecular docking is frequently used to predict the binding orientation of molecules to their protein targets to predict the affinity and activity of the molecule. Hence docking plays an important role in the rational design of drugs.

Purpose: The purpose of the study was to investigate the effect of different compounds from leaves of *Gymnema sylvetsre* (GS) on Nitric oxide production.

Methods: To study the binding and affect of different compounds from *Gymnema sylvetsre* 10 molecules were docked on the enzyme endothelial Nitric Oxide Synthase (eNOS) using MOLEGRO VIRTUAL DOCKER and the result was compared with that of the agonists (Acetylcholine, Bradykinin, and Serotonin). Further to confirm the activity animal studies were done on albino rats. Blood glucose levels were measured using glucometer and Nitric oxide levels were estimated spectrophotometrically using Griess agent.

Results: Docking studies showed that almost all the compounds from the leaves of *Gymnema sylvestre* bind perfectly with endothelial Nitric Oxide Synthase with lowest binding energies similar to that of the agonists. Animal studies confirmed the docking results when blood glucose levels decreased (465mg/dl to 145 mg/dl) and Nitric oxide levels increased (12 μ mol/l to 21.89 μ mol/l) in diabetic rats treated with *Gymnema Sylvestre* leaf extract.

Conclusion: Docking and animal studies shows that leaf extract of *Gymnema sylvestre* might help in improving the production of nitric oxide by stimulating endothelial Nitric Oxide Synthase (eNOS) and thus can be used as an agent to avoid diabetes and diabetic vascular complications.

Corresponding Authors:

Ms. Shabnam Dobani
Dr. K. Abedulla Khan
Dept. of Pharmacology
Sultan-ul-Uloom College of Pharmacy

Evaluation of Antiparkinsonian Potential of *Paeonia officinalis* In CPZ-induced Catalepsy in Albino Rats

Purpose: To evaluate the Antiparkinsonian potential of the unani drug *Paeonia officinalis* In CPZ-induced catalepsy in albino Rats.

Methods: Wistar albino rats were divided into four groups of six animals each. Group I serves as control to which CPZ (10mg/kg, i.p.) was administered. Group II, Standard Benzhexol (0.15/100g body weight, i.p.) was administered. To group III & IV *Paeonia officinalis* (50 & 100mg/kg body weight, orally) were administered followed by CPZ 30 min later respectively. The severity of catatonia was observed at different time intervals.

Results: It was observed that the percentage of inhibition of catatonia after 15 min of CPZ challenge in group II, III & IV were 75, 61 & 67 respectively. There was significant reduction in duration of catatonia in group II, III & IV as compared with control ($p < 0.5$).

After 30min of CPZ administration, the percentage inhibition in catatonia in group II, III & IV were 87, 74 & 78 respectively as compared with control group, which was statistically significant. The peak protective antiparkinsonian effect of *Paeonia officinalis* against CPZ-induced catalepsy was noted at 30min.

Conclusion: The unani drug *Paeonia officinalis* has shown significant protective effect against catatonia induced by CPZ. Hence this drug can be safely used in Parkinsonism patients with minimal side effects.

Corresponding Author:

Dr, N. Anitha
Dept. of Pharmacology
Sultan-ul-Uloom College of Pharmacy

Programme Outcomes (POs)

At the end of the programme the graduates shall

- a. Acquire fundamental knowledge of pharmaceutical, clinical and life sciences, their practical applications, relevant historical landmarks and political issues.
- b. Learn the basic principles of drug treatment, disease modifications, formulation development, manufacturing, quality assurance and analytical techniques.
- c. Understand drug designing, cellular mechanism, molecular biology and molecular modelling.
- d. Demonstrate knowledge of current regulatory guidelines and intellectual property rights.
- e. Have thorough knowledge of pharmacovigilance, ADR–monitoring and pharmacogenetics.
- f. Master the key concepts in modern pharmaceutical tools, software, equipments and their validation.
- g. Greatly enhance their practical skills, scientific approach, analytical and critical thinking potential accomplishing the real time requirements of all stake holders.
- h. Immensely benefit in organizing proficiency and knowledge dissemination in seminars, symposia and workshops.
- i. Interact with industries, academic, clinical and research organizations widening their intellectual horizons and entrepreneurial skills.
- j. Gain ability for sustainable development through team participation, communication, planning, time management, leadership and interpersonal skills.
- k. Be groomed on societal, health and environmental safety, legal, cultural, ethical, moral and social practices for a better professional identity and lifelong learning.
- l. Training graduates to achieve global competence to succeed competitive examinations in employment and higher education.

Sultan-ul-Uloom College of Pharmacy

“Mount Pleasant”
8-2-249, Road No.3
Banjara Hills, Hyderabad
500 034, A.P

Phone: 040 23820233
Email: suucop@yahoo.com
www.sultanuloompharmacy.ac.in

Courses Offered:

B.Pharm

M.Pharm

- Quality Assurance
- Pharmaceutical Chemistry

Programme Educational Objectives (PEOs)

Academic Excellence: Graduates of this program shall gain profound knowledge in various disciplines viz., applied mathematics & sciences, anatomy, physiology, pharmacology, pharmaceutics, pharmaceutical chemistry, pharmaceutical analysis, phytochemistry, biotechnology and regulatory affairs to cater to the requirements of pharmaceutical industries, professional pharmacy practice, clinical research organizations, medical transcription and data management companies.

Core Competence: Graduates to be developed into highly competent individuals with practical skills by igniting scientific temper and promoting intellectual quest to gear ahead towards competitive examinations and diverse careers in the field of pharmaceutical sciences through the process of continuous learning.

Personality Development and Professionalism: To inculcate discipline, professionalism, team spirit, communication skills, social and ethical commitment in the graduates in order to adorn leadership roles facilitating improvement in healthcare sector with a distinct professional identity, business acumen, global recognition and sustainable development.

Collaboration: To benefit graduates through industry – institute interface and collaboration works with other academic, clinical and research organizations resulting in confidence building, knowledge advancement and entrepreneurial competencies.

Regulatory Affairs: Graduates to be trained in current acts and regulations governing good manufacturing practices, good laboratory practices, good clinical practices and environmental safety, thereby enhancing integrity and ethical values in their profession.

Editor-in-Chief

Dr. J. Vekateshwara Rao
M.Pharm., Ph.D
Principal
Sultan-ul-Uloom College of Pharmacy

Associate Editor

Dr. N. Appala Raju, M.Pharm., Ph.D
Associate Professor
Sultan-ul-Uloom College of Pharmacy